**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

NOKIA TECHNOLOGIES OY,

        Plaintiff,

        v.

AMAZON.COM, INC., AMAZON.COM
SERVICES, LLC, AND TWITCH INTERACTIVE,
INC.,

        Defendants.

C.A. No. 23-1236 (GBW)

DEMAND FOR JURY TRIAL

**OPENING BRIEF IN SUPPORT OF DEFENDANTS'
MOTION FOR PARTIAL DISMISSAL
PURSUANT TO FED. R. CIV. P. 12(b)(6)**

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January 19, 2024

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I.   INTRODUCTION

This is a patent case—one of many filed by Nokia Technologies Oy ("Nokia") in jurisdictions around the world in its ongoing and well-publicized licensing dispute with Amazon.[1] To maximize the burden and cost to Amazon of defending against these meritless cases, Nokia has opted for quantity over quality, asserting twenty-one patents in two cases before this Court, seven patents in two cases before the U.S. International Trade Commission, and numerous additional patents across at least eight other cases outside the U.S. But the patents Nokia asserts are invalid on their face: the six at issue here claim abstract ideas—including mathematical formulas and the use of sequential numbering or labeling of parameters in video coding—while reciting no new, let alone inventive, technology for implementing these ideas. The Court should hold these patents invalid and dismiss Nokia's claims with prejudice for failure to claim eligible subject matter under 35 U.S.C. § 101.

II.   NATURE AND STAGE OF THE PROCEEDINGS

Nokia filed its complaint in this case on October 31, 2023, asserting fifteen U.S. patents. (D.I. 1 ("Compl.").) This motion concerns six of them, spanning three separate patent families: (1) the Pixel Averages Patents (U.S Patent Nos. 6,950,469 ("the '469 Patent"); 7,280,599 ("the '599 Patent"); 8,036,273 ("the '273 Patent")); (2) the Sequence Indicator Patents (U.S. Patent Nos. 6,968,005 ("the '005 Patent"); 8,144,764 ("the '764 Patent"); and (3) the Parameter Set Patent (U.S. Patent No. 7,724,818 ("the '818 Patent")).[2] But as discussed below, the patents claim

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[1] This is one of two lawsuits Nokia filed against Amazon in this District. *See Nokia Corp. v. Amazon.com, Inc.*, C.A. No. 23-1232-GBW (the "1232 Matter"). In the 1232 Matter, Nokia asserts eleven patents, five of which Amazon has challenged in its concurrently-filed motion to dismiss under § 101. In the 1232 Matter, Amazon seeks an invalidity determination as to the '818 patent, of which Nokia asserts a different asserted claim in this case.

[2] Amazon focuses this motion on six of the fifteen asserted patents in light of page limitations set by the Court's rules. But nothing in this motion should be construed as an admission that any

ineligible subject matter under § 101. Defendants Amazon.com, Inc., Amazon.com Services, LLC

and Twitch Interactive, Inc. (collectively, "Amazon") thus move under Fed. R. Civ. P. 12(b)(6) to

dismiss for failure to allege a patentable claim.

III.   SUMMARY OF THE ARGUMENT

1. The challenged patents claim nothing more than the abstract idea of encoding and

decoding video data, by using mathematical algorithms (the Sub-Pixel Averages Patents) and by

classifying information (the Sequence Indicator Patents and the Parameter Set Patent). Under

controlling Federal Circuit case law, such patents are ineligible under § 101. *See, e.g.*,

RecogniCorp, LLC v. Nintendo Co., 855 F.3d 1322, 1326 (Fed. Cir. 2017) ("standard encoding

and decoding" is an "an abstract concept long utilized to transmit information"); *Coffelt v. NVIDIA

Corp.*, 680 F. App'x 1010, 1011 (Fed. Cir. 2017) (claims that "recite nothing more than a

mathematical algorithm that could be implemented using a pen and paper" are abstract); *Intell.

Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1327 (Fed. Cir. 2017) ("organizing and

accessing records through the creation of an index-searchable database" is abstract). Because

Nokia's patents fail to recite a specific technological solution for achieving the claimed results,

they fail at Step One of the Supreme Court's *Alice* test. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*,

573 U.S. 208 (2014).

2. The challenged patents do not recite any inventive concept that transforms the claimed

abstract ideas into patent-eligible subject matter. Instead, the claims recite functional steps,

without "any requirement for performing the claimed functions . . . by use of anything but entirely

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of the remaining nine asserted patents claims eligible subject matter; to the contrary, the remaining
patents have similar flaws and Amazon reserves its right to seek a judgment on the pleadings of
§ 101 invalidity under Rule 12(c) as the case proceeds.

conventional, generic technology." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016). The claims therefore lack an inventive concept and fail at *Alice* Step Two. *Id.*

IV.   FACTUAL BACKGROUND

A.   The Pixel Averages Patents

The Pixel Averages Patents (the '469, '599, and '273 patents) are related, share an identical specification, and are identically titled "Method for Sub-pixel Value Interpolation." They generally relate to video compression, and specifically calculating "sub-pixel values" of video images using mathematical formulas.

As the patents explain, digital videos are sequences of still images that, when displayed at a high frame rate, create an illusion of motion. ('469 pat. at 1:10-31.) Each frame of an uncompressed digital video includes a large array of pixels, and each pixel corresponds to a value. (*See id.* at 1:31-48.) To efficiently transmit video signals, video encoding and compression algorithms seek to reduce the amount of information transmitted. The patents describe one such prior art encoding method: using mathematical interpolation methods to calculate sub-pixel values of video images. ('469 pat. at 6:65-7:3, 7:24-26, 7:55-67, 8:14-18, 8:43-53.) Instead of having to transmit all original pixel values, a video encoder can transmit a subset of the original pixel values; later, a video decoder calculates the values of the *non-transmitted* pixels (referred to as "sub-pixels") based on the received pixel values. According to the patents, such methods "reduce the amount of information transmitted while retaining an acceptable video quality." (*Id.* at 2:32-36.)

The Pixel Averages Patents claim interpolation methods using mathematical formulas, like prior art interpolation schemes described in the specification.[3] Specifically, the claims require

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[3] The patents describe several prior art interpolation algorithms. ('469 pat. at 7:26-34 (mathematical formula representing a "two-dimensional operation"), 8:43-53; 10:4-11:13; 11:39-12:49; 13:20-24 (describing existing "interpolation" schemes called Test Model 5 (TML 5) and Test Model 6 (TML6) that use "arithmetic" to calculate sub-pixel values).)

calculating sub-pixel values by determining the "weighted sums" and "weighted averages" of nearby pairs of pixels and sub-pixels. Figure 14(a), reproduced and annotated here, demonstrates this idea. In the figure, the "letter A is used to denote original image pixels," whereas "[a]ll other letters represent sub-pixel locations, the values of the subpixels . . . being obtained by interpolation." (*Id.* at 8:66-9:9.)
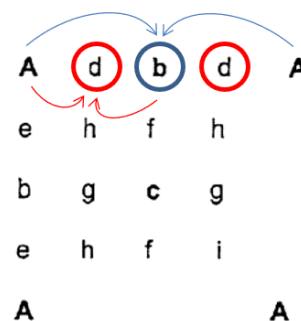
Fig. 14(a)

Taking the weighted average of the pair of "A" pixel values in the top row, results in the value of the sub-pixel labeled "b" circled in blue, between them. ('469 pat. at 35:34-38.) Then, taking the weighted average of the "A" pixel and "b" sub-pixel values results in the value of the sub-pixel labeled "d" circled in red, between them. The calculation of averages can be performed diagonally (*see, id.* at 36:39-61), or across a larger matrix (*see id.* at 42:8-43:12). The specification explains that "the average may be formed in any appropriate manner." (*Id.* at 37:21-22; 43:15-16.)

Nokia asserts claim 1 of the '469 patent, claim 1 of the '599 patent, and claim 1 of the '273 patent. Though lengthy, the claims are directed to nothing more than the idea of calculating sub-pixel values using weighted sums and averages of other pixel and sub-pixel values. For example, claim 1 of the '469 patent requires a "method of interpolation in video coding," comprising step (a) interpolating subpixel values "directly using weighted sums of pixels" in the image; step (b) interpolating additional sub-pixel values directly using "weighted sums of values being calculated according to step (a)," and step (c) interpolating additional subpixel values, again, "by taking a weighted average of the value[s]" of sub-pixels calculated in the earlier steps. (*See* Appx A (full text of asserted claims).) Claim 1 of the '599 patent and claim 1 of the '273 patent are directed to the same basic idea. They require the use of either a "weighted average" or "weighted sum" of the values of other pixels and sub-pixels in an image, adding only that the pixels and sub-

pixels can be described in terms of "co-ordinates" with "K" and "L" values, where those coordinate values can be zero, odd, and even values. (*See* Appx A.) Claim 1 of the '273 patent requires the use of a generic "apparatus" to carry out the same claimed method. ('273 pat. at cl. 1 (reciting "the method comprising *causing an apparatus to . . .*").)

The claims do not recite any new device or hardware (only a reference to an unspecified "apparatus"). They do not recite any new computing or video streaming technology. Instead, the claims recite mathematical formulas—weighted averages or weighted sums—used to interpolate the location of pixels and sub-pixels. The specification likewise focuses on these math formulas, and Nokia itself describes the patents as using "lower precision *arithmetic*." (Compl. ¶¶ 79, 94, 105 (emphasis added).) The specification describes no technical improvement to computing or video streaming technology; instead it refers to generic hardware components (*i.e.*, "a multimedia terminal, encoder, decoder, and video codec.") ('469 pat. at 24:55-67, 25:1-21.) The patents are silent as to how the claimed invention should be implemented; indeed, the specification notes that the method can be implemented—in some unspecified manner—as "software," "dedicated hardware," or a "combination of the two." (*Id.* at 24:55-67, 34:47-49.)

B. The Sequence Indicator Patents

The Sequence Indicator Patents (the '005 and '764 patents) are related, share an identical specification, and are identically titled "Video Coding." Video signals comprise a series of frames (referred to in the patents as "pictures") that must be first encoded or compressed and then decoded. The Sequence Indicator Patents relate to the use of "reference" pictures in a video.

The idea of using reference pictures—*i.e.*, pictures on which other pictures may depend for decoding purposes—long predates the Sequence Indicator Patents. ('005 pat. at 1:30-46.) Conventional video coding standards included two types of reference pictures: independently decodable "I-pictures," and "P-pictures" which can be decoded using previous pictures. (*Id.*; *see*

also id. at 3:33-35.) Non-reference pictures such as "B-pictures" may rely on I- or P- pictures for decoding. (*Id.* at 1:42-46.) But according to the specification, existing video coding standards had "no means to detect if a reference picture is lost" because standard video bitstreams lacked "information identifying the reference picture[s]." (*Id.* at 3:35-39.)

The Sequence Indicator Patents purport to address that problem by "indicating the temporal order of the reference picture in the encoded video signal" using one number per reference picture. (*Id.* at 4:8-12.) In other words, the claimed advance of the Sequence Indicator Patents is simply to *assign sequential numbers—e.g.*, 1, 2, 3, etc.—to pictures in a stream. These sequential numbers—referred to as "Reference Picture Order Numbers" or "RPONs"—are "incremented each time a successive reference picture is encoded, preferably by 1," thus allowing the system to know "whether a reference picture has been lost." (*Id.* at 4:13-14; 4:23-25; 7:30-35; 11:60-61.) According to the patents, in the claimed invention, a video signal, or bitstream, would include the RPON, and, after transmission, a decoder could compare the RPON values of two sequential reference pictures; if the difference between the RPON values is greater than the expected value, this indicates that a reference frame has been lost. (*Id.* at 4:51-60.) Figure 5, reproduced and annotated below, demonstrates the use of these so-called RPON numbers, showing sequential reference pictures (*i.e.*, I- or P-pictures) numbered 1 through 6.[4]

FIG. 5

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[4] Figure 5 shows other types of sequence numbers, including the "TR" (Temporal Reference), that were admittedly known and used in video coding at the time of the patents. (*Id.* at 3:39-52 (prior art use of "sequence numbers"), 9:44-11:9 (TR and other codewords used in a prior art bit stream).)

Nokia asserts three method claims of the Sequence Indicator Patents—claims 1 and 5 of the '005 patent and claim 1 of the '764 patent—each directed to the same concept of sequential numbering. Claim 1 of the '005 patent requires a "method of encoding a video signal" that comprises "indicating an encoding order" of reference pictures using "a sequence indicator," where the sequence indicator has a "numbering scheme" in which the values "differ . . . by a predetermined amount" (*e.g.*, differing by one). (*See* Appx A at 4.) Claim 5 of the '005 patent recites the same "sequence indicator," but claims a method of *decoding* a video signal in which the decoder "identif[ies] the sequence indicator value assigned to the reference picture" and compares values in order to detect any loss of a reference picture. (*Id.* at 4.) Claim 1 of the '764 patent requires a "method of encoding a video signal" comprising "assign[ing] consecutive reference pictures in encoding order" with "sequence indicator values that differ . . . by a predetermined amount," adding only that the assigning of numbers is carried out by an unspecified "encode[r]," which the claim defines only by its function. (*Id*. at 5.)

The claims are directed to the idea of encoding and decoding video signals using sequence indicators to detect if a picture has been lost, and identify no specific technological solution—or any technology at all—for implementing this idea. Indeed, the only remotely technological component of the asserted claims is a generic "encoder[]" that the specification admits predates the patents. ('005 pat. at 1:24-26.) The specification provides no implementation detail for the claimed encoder, and describes it solely by reference to its functions—receiving feedback from a decoder (*e.g.*, information about errors in a frame), deciding whether to apply coding, associating an RPON to a frame, and outputting an RPON code. (*Id.* at 7:28-32 (identifying "encoding control manager 105" as the software module that carries out the claimed numbering), 6:34-36, 6:50-67, 7:30-32, 7:35-37 (describing functions of claimed encoder).)

According to the specification, the use of sequence numbering in video coding, and incorporation of these sequential numbers into a bit stream, was conventional. (*Id.* at 8:1-8 (describing H.263 standard and its use of numeric coding for a picture using Temporal Reference (TR) codes); 2:65-3:12, 10:44-45 (describing prior art H.263 standard).) Thus, the specification acknowledges that the claimed invention is nothing more than a minor variation of encoding and decoding methods that long predated the patents.

C.   The Parameter Set Patent

The Parameter Set Patent (the '818 patent) is titled "Method for Coding Sequences of Pictures," and generally relates to the use of "parameters" in video coding. ('818 pat. at cover.) Video encoders typically output parameters, each of which have corresponding values, for the video. (*See* '818 pat. at 2:6-13, 2:49-3:10).) A decoder typically uses the parameters when decoding an encoded video signal, and the parameter values are contained in a header at the slice layer of a picture, also known as a "slice header." (*Id*. at 2:48-59 (describing the use of parameter values in the "slice header" in prior art coding standard).) Video encoders typically assign parameter values that apply across groups of data, *e.g.*, a "sequence" or "group of pictures," or "slices" of each individual picture. (*Id.* at 1:52-53; 2:2-5, 10:56-57; *see also id.* at 2:48-59 (describing the use of parameter sets in prior art).)

The Parameter Set Patent proposes to take existing coding schemes that use parameter sets, and "splits the parameter set structure" into two parameter sets (*i.e*., a "sequence parameter set" and a "picture parameter set") such that "all picture parameter sets that are referred to within a sequence must refer to the same sequence parameter set" and "all slices of a picture must refer to the same picture parameter set." (*Id.* at 4:5, 4:15-16, 4:18-19, 7:3-4.) It does this because some parameter values are common across the pictures in a sequence, and other parameter values are

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common across the slices in a picture. (*Id.* at 7:25-26.) The patent proposes to group these

common values either at the sequence level or the picture level. (*Id.* at 4:19-21.)

Nokia asserts in this case claim 1 of the Parameter Set Patent, which is directed to this

abstract idea. It requires a "method for encoding sequences of pictures," by defining values in

each of a "sequence parameter set for a sequence of pictures" and a "picture parameter set for a

picture," and defining at least one picture parameter value that "remain[s] unchanged at least in all

slice headers of one picture." (*Id.* at cl. 1.) Stripped of its excess verbiage, the claim requires

classifying or grouping parameter values into two sets: (1) a "sequence parameter set" when those

values are the same across pictures, and (2) a "picture parameter set" when those values are the

same across slices of a picture. (*Id.*)

The only computing component referenced in claim 1 is a generic "encoder" that performs

the claimed "defining" of parameter values. But neither the claim nor the specification provides

any actual technology for implementing this idea. The specification does not articulate any

particular, let alone new, process for defining parameter values. Nor does it identify any new

hardware or computing components. The specification describes a generic encoder—referred to

as "encoder 1," and shown in Figures 2 and 3, reproduced (and annotated in red) below:
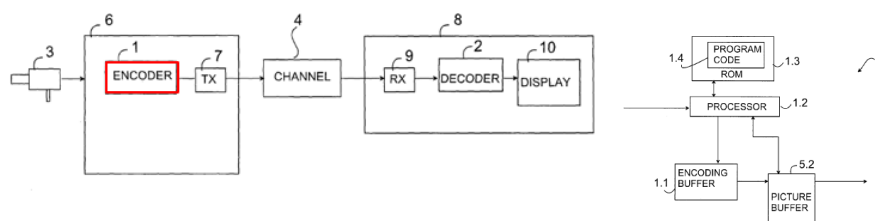

Fig. 2   Fig. 3

Figure 2 depicts the encoder as a literal empty box. As shown in Figure 3, the encoder comprises

a generic "memory" and "processor." (*Id.* at 11:3-10.) The encoder includes an "encoding buffer"

and "picture buffer," but Figure 3 depicts these as **nothing more than functional boxes**. (*Id.* at

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Fig. 3; *see also id.* at 11:2-3 (encoding buffer is component for "temporarily storing some of the pictures to be encoded"); 11:21 (picture buffer is where "encoded pictures are moved").)

V.   ARGUMENT

The Supreme Court in *Alice* directs courts to take a two-step approach when assessing patent validity under Section 101. *Alice*, 573 U.S. 208, 217-18. At Step One, a court should consider whether the claims are directed to an abstract idea. *Id.* If so, the court should proceed to Step Two and decide whether the claims add an "inventive concept"—"an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [abstract idea] itself.'" *Id.* at 217-18 (quotation omitted). The Federal Circuit has repeatedly recognized that courts may determine patent eligibility on a Rule 12(b)(6) motion. *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1373 (Fed. Cir. 2016).

The Pixel Averages Patents, Sequence Indicator Patents, and Parameter Set Patent are all directed to methods of encoding and decoding video, an impermissibly abstract idea under a long line of Federal Circuit and District Courts opinions. *See RecogniCorp*, 855 F.3d at 1326 ("standard encoding and decoding" is an "an abstract concept long utilized to transmit information"); *Realtime Adaptive Streaming LLC v. Netflix, Inc.*, No. 17-1692-CFC-SRF, 2018 WL 6521978, at *5 (D. Del. Dec. 12, 2018) (claims directed to the "abstract idea of encoding and decoding data, and the digital compression of data"); *see also Realtime Data LLC v. Array Networks Inc*, 537 F. Supp. 3d 591, 608 (D. Del. 2021) (finding that data compression patents are directed to abstract ideas as they do not "go[] beyond conducting data analysis and performing mathematical operations" which "could be implemented using pen and paper"); *Plotagraph, Inc. v. Lightricks, Ltd.*, 620 F. Supp. 3d 591, 600 (S.D. Tex. 2022) ("Shifting pixels to create the illusion of movement within an image is a digital version of animation, which is an abstract idea.").

The patents additionally claim methods of encoding and decoding video using simple mathematical algorithms or methods of organizing or classifying data, ideas that numerous courts have held abstract and ineligible. *RecogniCorp,* 855 F.3d at 1327 ("[a]dding one abstract idea . . . to another abstract idea . . . does not render the claim non-abstract."). Indeed, even the algorithms and classification schemes are themselves particularly simplistic: weighted averages, counting by 1, and splitting a large set into two smaller ones. The patents seek to distract from the simplicity of the claimed ideas by reciting lengthy limitations with terms that appear at least superficially complex. But, at bottom, these claims cover nothing more than conventional coding standards with the mere addition of elementary-school-style ideas that are abstract and lack the sort of inventive concept necessary to overcome a Section 101 challenge. Just as other courts have invalidated similar claims, this Court should do the same.

A.   The Pixel Averages Patents are patent-ineligible.

At *Alice* Step One, courts examine the "'focus' of the claims" or their "character as a whole" to determine whether they are directed to an abstract idea. *Elec. Power Grp.*, 830 F.3d at 1353. To be non-abstract, computer-implemented claims must be "directed to a specific improvement to computer functionality." *In re TLI Commc'ns LLC Pat. Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016). The claims of the Pixel Averages Patents focus on the idea of deriving sub-pixel values by taking weighted sums and averages of the other pixel values—in other words, the idea of encoding and decoding video using basic math. They are not directed to a specific technological solution, and are abstract at Step One.

The idea of encoding and decoding video is abstract as a matter of law. *See RecogniCorp*, 855 F.3d at 1326. Performing this encoding and decoding using a math formula—*e.g.*, calculating weighted averages—does not make this idea less abstract. The Federal Circuit's *RecogniCorp* opinion makes this clear. There, the challenged patent claimed "a method whereby a user displays

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images on a first display, assigns image codes to the images through an interface using a mathematical formula, and then reproduces the image based on the codes." *RecogniCorp*, 855 F.3d at 1322, 1324, 1326. The Federal Circuit held that the claim was directed to an abstract idea, explaining that encoding and decoding is "an abstract concept long utilized to transmit information." *Id.* Such a claim, "clearly directed to encoding and decoding image data . . . does not claim a software method that improves the functioning of a computer." *Id.* at 1325, 1327. The Federal Circuit also explained that adding math to the abstract idea of encoding and decoding did not render the claim non-abstract. *Id.* at 1327. Where a process merely "start[s] with data, add[s] an algorithm, and end[s] with a new form of data," that process is directed to an abstract idea. *Id*.

Like the claims in *RecogniCorp*, the claims of the Pixel Averages Patents are directed to encoding and decoding video data using math to interpolate sub-pixel values.   The fact that the claims require the use of "weighted sums" and "weighted averages" does not change their abstract character. Indeed, these limitations are nothing more than arithmetic, which is abstract as a matter of law. *See RecogniCorp*, 855 F.3d at 1225-27; *see also Alice*, 573 US at 222 ("simply implementing a mathematical principle on a physical machine, namely a computer, is not a patentable application of that principle" (citation omitted)); *Parker v. Flook*, 437 U.S. 584, 595 (1978) ("[I]f a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory." (internal citation omitted)); *In re Bd. of Trustees of Leland Stanford Junior Univ.*, 991 F.3d 1245, 1250 (Fed. Cir. 2021) ("Courts have long held that mathematical algorithms for performing calculations, without more, are patent ineligible under § 101."); *Coffelt*, 680 F. App'x at 1011 (claims for deriving a "pixel color . . . mathematically using vectors" recite "nothing more than a mathematical algorithm that could be implemented using a pen and paper" and are abstract);

Digitech Image Tech's v. Elecs. for Imaging, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (claim to "a method of calculating, using a mathematical formula, even if the solution is for a specific purpose" is ineligible) (citation omitted)). The patents do not describe a special way of performing the calculations. ('273 patent at 43:32-34 (averages "may be formed in any appropriate manner").) Because the claimed process merely starts with data (i.e., pixels), adds an algorithm (i.e., calculating sums and averages), and ends with a new form of data (i.e., pixels, with sub-pixels), this is an abstract idea. *RecogniCorp*, 855 F.3d at 1327.

The claims of the Pixel Averages Patents also fail Step Two of the *Alice* test, as they recite no inventive concept. The claims recite the results of encoding and decoding video data, implemented using arithmetic formulas. Each element of the claims simply recites an "interpolating" step, without reciting any new hardware or special programming. Indeed, neither claim 1 of the '469 patent, nor claim 1 of the '599 patent recite any physical component at all. The claims recite only a combination of "well-understood, routine, conventional" elements and "purely functional" elements, and are thus non-inventive as a matter of law. *Alice*, 573 U.S. at 221-26.

The claims fare no better when considered as an ordered combination. Indeed, to recite an inventive ordered combination, a claim must recite a combination that yields an "unexpected result"—that is, more than the expected sum of the individual elements—that "transform[s] the abstract idea into patentable subject matter." *Universal Secure Reg. LLC v. Apple Inc.*, 10 F.4th 1342, 1353, 1357-58 (Fed. Cir. 2021). Here, the claims merely recite mathematical steps to carry out pixel interpolation, a concept that long predated the patents. ('469 pat. at 6:56-13:27.) These mathematical steps are performed in a logical order: first, calculate a set of numbers, then, use the calculated numbers to calculate other numbers. The result—an array of resulting pixel values—is precisely the result expected from the claimed math, and does not create an inventive concept. In

other words, the ordered combination of an abstract idea (video encoding/decoding) with a law of nature (weighted averaging) implemented on a generic computer does not satisfy *Alice* step 2.

Finally, Nokia's allegations in its complaint cannot save its claims from ineligibility. Nokia alleges that the Pixel Averages Patents provide "a specific technological improvement . . . that results in increased efficiency and reduced computational complexity and memory requirements." (Compl. ¶¶ 80, 93, 106.) As an initial matter, the Court should "disregard conclusory statements" when evaluating a complaint under Rule 12(b)(6). *See Simio, LLC v. FlexSim Software Prod., Inc.*, 983 F.3d 1353, 1365 (Fed. Cir. 2020) ("A statement that a feature 'improves the functioning and operations of the computer' is, by itself, conclusory."); *Int'l Bus. Machines Corp. v. Zillow Grp., Inc.*, No. 2022-1861, 2024 WL 89642, at *4 (Fed. Cir. Jan. 9, 2024) ("Simply including allegations of inventiveness in a complaint, detached from what is claimed or discussed in the patent, does not ensure that the complaint will survive the pleading stage."). Regardless, claims directed to "'improved speed or efficiency inherent with applying the abstract idea on a computer' are insufficient to demonstrate an inventive concept." *Voit Techs., LLC v. Del-Ton, Inc.*, 757 F. App'x 1000, 1003–04 (Fed. Cir. 2019). As a court in this District has explained, "problems of information storage and transmission are not limited to a particular technological environment, and so an idea that addresses such problems generally is not a technological solution." *Realtime*, 537 F. Supp. 3d at 620. Accordingly, purported "[e]fficiency gains"—including those relating to "systems of digital data compression," like those at issue here—are "not the same as a technical solution to a technical problem." *Id at 619.* The patents thus fail both steps of the *Alice* test and are directed to ineligible subject matter under § 101.

B.   The Sequence Indicator Patents are patent-ineligible.

Like the Pixel Averages Patents, the Sequence Indicator Patents are also directed to the abstract idea of encoding and decoding video data. *See*, *e.g.*, *RecogniCorp*, 855 F.3d at 1326

(encoding is "an abstract concept long utilized to transmit information"). The claims require indexing pictures using a "sequence indicator" that assigns successive numbers to reference pictures in the order in which they appear—as simple as assigning "1," "2," and "3" to the first, second, and third respective reference frames in sequence. Such an indexing system, which amounts to *numbering*, is an abstract idea ineligible for patent protection.

Even more complex forms of "indexing" have been found to constitute unpatentable abstract ideas. The Federal Circuit has held claims directed to "creating an index and using that index to search for and retrieve data" in a database to be abstract and ineligible. *Intell. Ventures I*, 850 F.3d at 1327 (Fed. Cir. 2017). The patent in *Erie* claimed that "prior art database searching methods" were "inefficient," resulting in the "return [of] many false positives." *Id.* at 1325. The patent purported to solve that problem by using "an index that includes tags and metafiles to locate the desired information," specifically "XML tags." *Id.* at 1327. The Federal Circuit expressly rejected the plaintiff's argument that the patent's "XML tags" constituted a "specific search architecture that improves how computer databases function." *Id.* at 1327. The court concluded that the claims were directed to an abstract idea, noting that "[t]his type of activity, i.e., organizing and accessing records through the creation of an index-searchable database, includes longstanding conduct that existed well before the advent of computers and the Internet." *Id.* The court's reasoning applies with equal force here.

The Sequence Indicator Patents claim a far simpler index-by-numbers system than the XML indexing described in *Erie*. Indeed, assigning a number could be performed by a human without a computer, or with pencil and paper. That is, a person looking at a stack of ten photos taken in sequential manner could do exactly what the patent claims to do: label the photos with numbers based on the order in which they were taken or any other criteria. This is not a mere

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hypothetical – a coffee table book of photos with a table of contents largely discloses the "innovative" concept of this claim. Yet, that is the claimed innovation of the Sequence Indicator Patents, according to both the specification and Nokia's complaint. (Compl. ¶ 137 ("novel sequence indicator with an independent numbering scheme"); *see also* '005 pat. at 4:12-25.)

As another court in this District noted, "[h]umans have long been capable of sorting and organizing data, and using a computer to automate this concept is abstract." *Blackbird Tech LLC v. Advanced Discovery Inc.*, No. 16-413-GMS, 2017 WL 2734725, at *4 (D. Del. June 26, 2017). The idea claimed in the Sequence Indicator Patents—numbering records to keep track of the data— is the type of longstanding human conduct that has been used for centuries, since the Library of Alexandria, and that the Federal Circuit has repeatedly held ineligible. *See Erie*, 850 F.3d at 1327; *see*, *e.g.*, *Elec. Power Grp.*, 830 F.3d at 1353 (claims directed to "collecting information, analyzing it, and displaying certain results of the collection and analysis" are ineligible); *Content Extraction & Transmission LLC v. Wells Fargo Bank*, *Nat. Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (claims directed to collecting, recognizing and storing data are ineligible.); *Univ. of Fla. Rsch. Found., Inc. v. Gen. Elec. Co.,* 916 F.3d 1363, 1367-68 (Fed. Cir. 2019) (claims to collecting, manipulating, and displaying data are ineligible).

The asserted claims of these patents also fail Step Two of *Alice*, because they recite no inventive concept. The claimed "sequence indicator with an independent numbering scheme" is nothing more than a number that is incremented by a fixed amount (*e.g.*, by one). Indeed, the specifications of the Sequence Indicator Patents acknowledge other known sequence numbering systems (such as TR), and that conventional video coding standards already included such numbering in a bitstream. (*See supra*, 6-7.) And the specification explains that the claimed numbering system is not tied to any specific video coding protocols, but is "applicable to any video

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coding protocol in which temporal prediction may be used." ('005 pat. at 14:63-64). Moreover, the claims merely recite a series of functions—"indicating," "assign[ing]" or "identifying" a sequence indicator—without reciting specific programming or hardware for implementing the functions. This is insufficient to create an inventive concept. *Elec. Power Grp.*, 830 F.3d at 1356.[5]

Nor can Nokia escape the conventional nature of these claims through a boilerplate assertion that the claims include a specific "ordered combination of elements." (Compl. ¶ 141). An ordered combination lacks an inventive concept where the "recited physical components behave exactly as expected according to their ordinary use" or are "organized in a completely conventional way." *TLI* , 823 F.3d at 615. Here, the claims of the Sequence Indicator Patents recite nothing more than a numbering scheme that yields precisely what is expected: an indication of the order of reference pictures. This does not transform the otherwise abstract idea into patent-eligible subject matter. The Sequence Indicator Patents are abstract, non-inventive, and patent ineligible under § 101.[6]

C. The Parameter Set Patent is patent-ineligible.

At *Alice* Step One, the asserted claim of the '818 Parameter Set Patent is directed to an abstract idea similar to that of the Sequence Indicator Patents—encoding and decoding video data by classifying data in the pictures. Instead of using a "sequence indicator" numbering system, the Parameter Set Patent classifies parameter values based on whether they are the same across slices

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[5] The only physical component recited in any claim of the Sequence Indicator Patents is an "encoder." (*See* '764 pat. at cl. 1.) The specification makes clear that the encoder is merely a functional black box. (*See* '005 pat. at 6:21-28, Fig. 3). Thus, the recitation of this functionally-defined "encoder" is insufficient to save the claims from ineligibility. *Realtime*, 537 F. Supp. at 610 (no inventive concept where the claims use encoder to perform data compression because '"encoder" is simply the patent's name for a mathematical compression algorithm").

[6] Nokia's conclusory allegations that the patents provide "a specific technological improvement" cannot save the Sequence Indicator Patents from ineligibility. (Compl. ¶¶ 138, 149.) Such allegations do not constitute technological improvements sufficient to transform the claims into patent-eligible subject matter. *Realtime*, 537 F. Supp. at 619, 620.

of a picture (*i.e.*, values in the "picture parameter set") or across pictures of a sequence (*i.e.*, values in the "sequence parameter set"). This idea is again the same as a human receiving a set of printed photos and identifying characteristics (*i.e.*, "parameter values") common to subsets of the printed photos, thus forming "parameter sets." For example, a human can classify photos with date stamps, mentally or with a pen, using the dates as a "parameter value" common across multiple pictures, and organize them into sets based on when they were taken. Indeed, newborns react similarly to pictures with similar characteristics – the concept of grouping and classifying images is an innate human characteristic. The idea to which the Parameter Set Patent is directed—encoding and decoding video data by classifying parameters of a picture—is impermissibly abstract at *Alice* Step One. *See, e.g., RecogniCorp*, 855 F.3d at 1326; *see also Erie*, 850 F.3d at 1327; *Elec. Power Grp.*, 830 F.3d at 1353; *Content Extraction*, 776 F.3d at 1347; *Univ. of Fla. Research Found.,* 916 F.3d at 1367-68.

The Federal Circuit's *TLI* decision is instructive. 823 F.3d 607 (Fed. Cir. 2016.). The claim there recited recording images, transmitting them with "classification information," extracting the "classification information," and storing them based on the "classification information." *Id.* at 610. The Federal Circuit held the claim was directed to the abstract idea of "classifying an image and storing the image based on its classification." *Id.* at 612. The asserted claim of the Parameter Set Patent is no less abstract; it claims the use of image classification information (here, picture parameters). This is an abstract idea.

The Parameter Set Patent also fails *Alice* Step Two. Again, neither the claim nor the specification discloses any new hardware or software for achieving the result of defining parameter values. To the contrary, the patent confirms that video coding was well known before the patent, and that video coding standards already used parameter sets, including parameters for picture- and

sequence-level data. ('818 pat. at 1:19-21 (describing "conventional video coding standards"), 2:48-56 (use of "parameter set" in JVT coding standard).) Further, the asserted claim of the Parameter Set Patent recites an encoder that performs the function of defining "parameter values" in a "sequence parameter set" and "picture parameter set." ('818 pat. at cl. 1.) Such functional claim limitations, performed by an off-the-shelf "encoder," cannot supply an inventive concept. *Elec. Power Grp.*, 830 F.3d at 1356 (no inventive concept where functions performed by "entirely conventional, generic technology"); *Affinity*, 838 F.3d 1266, 1269 (Fed. Cir. 2016) (invalidating claims "describ[ing] a desired function or outcome, without providing any limiting detail").

Nor does the asserted claim recite an inventive concept as an ordered combination. The claim recites a single function—defining parameter values—and requires that this single function is performed in three contexts (*i.e.*, defining values in each of a *sequence* parameter set, *picture* parameter set, and a *slice header*). The "combination" of performing this single function in three contexts does not yield any "unexpected result." *Universal Secure Reg.*, 10 F.4th at 1353, 1357-58 ("Without some unexpected result or improvement, the claimed idea of using three or more conventional authentication techniques to achieve a higher degree of security is abstract."). It does not transform the abstract idea recited in the claim into patent eligible subject matter.[7]

> **D.   The Court should hold all claims of the Pixel Averages Patents, Sequence Indicator Patents, and Parameter Set Patent ineligible under § 101.**

Nokia's complaint alleges infringement of the specific claims analyzed above. (Compl. ¶¶ 245-246, 251-252, 257-258 ('818 pat.); *id.*, ¶¶ 263-264, 270, 276 ('469 pat.); *id.* ¶¶ 282-283, 289, 295 ('599 pat.); *id.*, ¶¶ 301-302, 308, 314 ('273 pat.); *id.*, ¶¶ 346-347, 352, 356, 361, 367, 369 ('005 pat.); *id.*, ¶¶ 370-371, 376, 380 ('764 pat.).) However, to the extent Nokia later asserts

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[7] Nokia's conclusory allegation regarding a "technological improvement" (Compl. ¶ 67) is conclusory and insufficient to save the claims from ineligibility. *Realtime*, 537 F. Supp. at 619.

additional claims from the challenged patents, those claims are patent-ineligible for the same reasons that the asserted claims of those patents, discussed above, are ineligible. As the Federal Circuit has held, "[c]ourts may treat a claim as representative in certain situations, such as if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative claim or if the parties agree to treat a claim as representative." *Berkheimer v. HP Inc.*, 881 F.3d 1360,1365 (Fed. Cir. 2018). Here, nothing in the complaint suggests that the other claims of the asserted patents have "distinctive significance" from the asserted claims. Nor do the claims themselves reflect any meaningful distinction. Because Nokia has not, and cannot, make any such allegations, the Court should treat the claims analyzed herein as representative and hold that all claims of the Pixel Averages Patents, Sequence Indicator Patents and Parameter Set Patent are patent-ineligible.

E.   The Court should deny leave to amend.

No amendment to the complaint can transform the claims into patent-eligible subject matter. Because any amendment would be futile, the Court should deny any request by Nokia to amend its complaint. *Wireless Discovery LLC v. Coffee Meets Bagel, Inc.*, 654 F.Supp.3d 347, 359 (D. Del. 2023) (denying leave to amend, as "[t]he claims of the patents say what they say").

VI.   CONCLUSION

For the foregoing reasons, the Court should hold the claims of the Pixel Averages Patents, Sequence Indicator Patents, and the Parameter Set Patent invalid under § 101, and dismiss Counts III ('818 patent), IV ('469 patent), V ('599 patent), VI ('273 patent), IX ('005 patent) and X ('764 patent) of the complaint with prejudice.

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January 19, 2024

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CERTIFICATE OF SERVICE

I hereby certify that on January 19, 2024, I caused the foregoing to be electronically filed with the Clerk of the Court using CM/ECF, which will send notification of such filing to all registered participants.

I further certify that I caused copies of the foregoing document to be served on January 19, 2024, upon the following in the manner indicated:

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